

# Tokai Maru

## REPORT ON OIL ENGINE ELECTRIC GENERATOR SETS.

No. 6941.

Received at London Office

Date of writing Report 5.5.1930 When handed in at Local Office

Port of

Kobe

24 MAY 1930

No. in Survey held at

Kobe

Date, First Survey 19<sup>th</sup> AUG. 1929Last Survey 30<sup>th</sup> APRIL 1930

Number of Visits 79

 Single  
on the Twin  
Triple  
Quadruple

Screw vessel

(MITSUBISHI YARD NAGASAKI N° 472)

Tons { Gross  
Net

Built at NAGASAKI

By whom built

MITSUBISHI ZOSEN KAISHA LTD

Yard No. 472

When built 1930

Owners

OSAKA SHOSEN KAISHA

Port belonging to

OSAKA

Oil Engines made at

Kobe

By whom made

MITSUBISHI ZOSEN KAISHA LTD

Contract No. 92.93.94

When made 1930

Generators made at

NAGASAKI

By whom made

"

"

"

Contract No.

When made 1930

No. of Sets 3

Engine Brake Horse Power 390

Nom. Horse Power as per Rule 81

Total Capacity of Generators 780 Kilowatts.

OIL ENGINES, &amp;c.—Type of Engines MITSUBISHI VICKERS

2 or 4 stroke cycle 4

Single or double acting SINGLE

Maximum pressure in cylinders

30 kg/cm<sup>2</sup>

Diameter of cylinders

300 mm

Length of stroke

450 mm

No. of cylinders

6

No. of cranks

6

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge

355 mm

Is there a bearing between each crank

YES

Revolutions per minute

340

Flywheel dia.

1,700 mm

Weight

3,455 kg

Means of ignition

COMPRESSION

Kind of fuel used DIESEL OIL F.P. ABOVE 150°F

Crank Shaft, dia. of journals

as per Rule 177 mm

as fitted 185 mm

Crank pin dia.

185 mm

Crank Webs

Mid. length breadth 270 mm

Thickness parallel to axis

shrunken

Mid. length thickness 98 mm

Thickness around eye-hole

"

Flywheel Shaft, diameter

as per Rule

as fitted

Intermediate Shafts, diameter

as per Rule

as fitted

Thickness of cylinder liners

30 mm

Is a governor or other arrangement fitted to prevent racing of the engine when de-clutched

YES

Means of lubrication

FORCED

Are the cylinders fitted with safety valves

YES

Are the exhaust pipes and silencers water cooled &amp; lagged with non-conducting material

YES

Cooling Water Pumps, No. 1 @ 110 mm x 45 mm GEAR DRIVE Is the sea suction provided with an efficient strainer which can be cleared within the vessel

Lubricating Oil Pumps, No. and size

1 @ 110 mm x 45 mm

GEAR DRIVE

Air Compressors, No.

Two

No. of stages

3

Diameters

75 mm x 295 mm x 340 mm

Stroke

180 mm

Driven by

MOTOR

Scavenging Air Pumps, No.

Diameter

Stroke

Driven by

AIR RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule

Can the internal surfaces of the receivers be examined

What means are provided for cleaning their inner surfaces

Is there a drain arrangement fitted at the lowest part of each receiver

High Pressure Air Receivers, No.

Cubic capacity of each

Internal diameter

thickness

Seamless, lap welded or riveted longitudinal joint

Material

Range of tensile strength

Working pressure by Rules

Starting Air Receivers, No.

ONE

Total cubic capacity 401.267 LITRE

Internal diameter

21"

thickness

625"

Seamless, lap welded or riveted longitudinal joint

DR.D.B.S.

Material ON STEEL

Range of tensile strength 28-35 TONS

Working pressure by Rules

645 lb

ELECTRIC GENERATORS:—Type MITSUBISHI COMPOUND WOUND

Pressure of supply

225

volts. Load

1160

Amperes. Direct or Alternating Current

DIRECT

If alternating current system, state frequency of periods per second

Has the Automatic Governor been tested and found efficient when the whole load is suddenly thrown on or off

Generators, do they comply with the requirements regarding rating

YES, TESTED AT NAGASAKI

are they compound wound

YES

are they over compounded 5 per cent.

YES

, if not compound wound state distance between each generator

is an adjustable regulating resistance fitted in series with each shunt field

YES

Are all terminals accessible, clearly marked, and furnished with sockets

YES

are they so spaced or shielded that they cannot be accidentally earthed, short circuited, or touched

YES

Are the lubricating arrangements of the generators as per Rule

YES

PLANS. Are approved plans forwarded herewith for Shafting

25<sup>th</sup> APRIL 1929

Receivers

Separate Tanks

SPARE GEAR

SEE SEPARATE LIST, WHICH WILL BE FORWARDED LATER.

The foregoing is a correct description,  
KOBE SHIPYARD & ENGINE WORKS, M.Z.K., LTD.,

General Manager.

Manufacturer.



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Lloyd's Register  
Foundation

008201-008210-0085



Dates of Survey while building  
 During progress of work in shops - 1929 Aug: 16-19-20. Sept: 2-4-17. Oct: 1-9-19-25. Nov: 2-13-15-21-28. Dec: 9-11-12-13-14-18-20-24.  
 During construction on board vessel - 1930 Jan: 2-10-15-16-17-18-21-22-23-24-25-27. Feb: 5-8-12-13-17-19-21-22-24-25-26-27.  
 Total No. of visits { MARCH: 2-4-5-6-7-8-10-11-14-15-17-19-22-24-25-29. APRIL: 2-4-9-10-15-16-17-18-21-22-23-24-25-26-28-30. (Total 79)

Dates of Examination of principal parts—Cylinders 16-1-30 27-2-30 3-3-30 Covers 17-1-30 18-1-30 3-3-30 Pistons 15-1-30 23-1-30 24-1-30 25-1-30 26-1-30 27-1-30 28-1-30 29-1-30 30-1-30 Piston rods 16-1-30 27-2-30 3-3-30

Connecting rods 16-1-30 27-2-30 3-3-30 Crank and Flywheel shaft 27-2-30 Intermediate shaft 16-1-30 27-2-30 3-3-30

Crank and Flywheel shafts, Material O.N. STEEL Identification Mark LLOYD'S N° 5878 J.L. 16-8-29 LLOYD'S 5887 J.L. 20-8-29 LLOYD'S 5834 J.L. 9-8-29

Intermediate shafts, Material Identification Marks

Is this machinery duplicate of a previous case YES If so, state name of vessel NAG: N° 471

General Remarks (State quality of workmanship, opinions as to class, &c.)

The crank shafts of these engines were supplied by M<sup>rs</sup> Krupp, Essen, Germany in finished condition.  
 These engines have been constructed under special survey in accordance with the Rules & approved plans. The materials have been tested found efficient, & the workmanship throughout is good. They have been tested under full load & overload working conditions, connected to their generators, run in parallel tests, & the efficiency of the governors tried, & all found satisfactory. After trials, all parts opened up, cleaned, examined & found good. This machinery is eligible in my opinion for the record of L.M.C. in the Register Book.  
 They have now been shipped to Nagasaki where it is intended to install them on vessel N° 472 & have been stamped as follows.

ENG: N° 92	ENG: N° 93	ENG: N° 94
LLOYD'S	LLOYD'S	LLOYD'S
N° 2488	N° 2489	N° 2490
H.D.B.R.	H.D.B.R.	H.D.B.R.
26-4-30	26-4-30.	26-4-30.

Mark on Generator	LLOYD'S N° 294 B K.K. 5-3-30	LLOYD'S N° 294 K.K. 5-3-30.	LLOYD'S N° 294 B G.R. 7-3-30.
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The amount of Fee ... ¥ 975.-  
 Travelling Expenses (if any) ¥ 80.  
 When applied for, 5th May 1930.  
 When received, 19.

H. D. Buchanan.  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute  
 Assigned